

REMARKS

Claims 1-5 and 7 are amended; claim 6 is canceled; and new claim 11 is added. Support is found, for example, at page 8, line 5 to page 9, line 2; at page 13, lines, 13-14 and lines 22-24; at page 16, lines 14-26, and at page 17, lines 1-10, etc.

Claim 10 is rejected under 35 U.S.C. § 102(b) as being anticipated by Kamiya et al (EP 1082907).

Claims 1-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamiya et al (EP 1082907).

Claim 1 is amended to make it clear that the process of claim 1 contains three steps of (1) subjecting raw cream to a first heat treatment at 85°C to 95°C, (2) preparing butter milk and/or butter serum, and (3) subjecting the butter milk and/or butter serum to a second heat treatment at 85°C to 130°C and in which a dissolved oxygen concentration of the raw cream, and/or the butter milk and/or butter serum is decreased to 8 ppm or less by addition of an inactive gas before the first heat treatment and/or the second heat treatment.

Features of the Present Invention

According to the process for preparing butter milk and/or butter serum of the invention, it is possible to produce butter milk and/or butter serum having improved storage stability while keeping or improving the flavor. This is an important feature of the present invention.

Conventionally, in spite of the excellent characteristics such as high nutritive value, various physiological functions and reinforcement of milk flavor of food, the application of butter milk and/or butter serum as a food material has hardly been developed, because it is apt to undergo oxidation. This is due to the dissolved oxygen from the air which quickly generates unpleasant taste and smell. However, due to the present invention, it is possible to stably utilize

butter milk and/or butter serum and to recycle the entire amount of butter milk and/or butter serum so that their applications can be extremely expanded.

Comparison between the present invention and Kamiya et al

There is no teaching or suggestion in Kamiya et al about such particular and novel conditions of heat treatments at specific temperatures under specific dissolved oxygen concentrations, i.e., decreasing the dissolved oxygen concentration of the raw cream, and/or the butter milk and/or butter serum to 2 to 8 ppm or less by addition of an inactive gas before the first heat treatment at 85°C to 95°C and/or the second heat treatment 85°C to 130°C.

Furthermore, Kamiya et al does not teach or suggest butter milk and butter serum which require at least two heat treatments (heat pasteurization), and does not even mention improving the storage stability of the butter milk and butter serum, thereby allowing for recycling of the entire amount of butter milk and butter serum.

Moreover, in Kamiya et al, there is no suggestion of the technical idea of improving the storage stability of the butter milk and butter serum which have been discarded, thereby allowing for recycling of the entire amount of butter milk and butter serum.

On the contrary, according to the process of the invention, not only can the generation of oxidized smell be prevented and the milky flavor originally possessed by butter milk and butter serum can be maintained, but also the storage stability thereof can be improved. Consequently, although the use and application of the use butter milk and butter serum was strictly restricted prior to the present invention, extreme expansion of their use and recycling of the entire amount of butter milk and butter serum, which had to be discarded, can be achieved due to the present invention. Such an effect is superior and unexpected and it cannot be easily conceived from Kamiya et al. There is no apparent reason for one of ordinary skill in the art to modify the

disclosure of Kamiya et al with a reasonable expectation of success of achieving the claimed invention.

More specifically, since butter milk and butter serum are very easily apt to undergo oxidation, it is only possible to utilize them under temporally- and spatially-limited environment such as in the same factory (in the same building). Therefore, most of the butter milk and butter serum cannot be actually utilized and thus discarded in so far. The present invention has been achieved to overcome such a situation, and according to the present invention, the stability of butter milk and butter serum are improved so that the period in which butter milk and butter serum can be utilized can be extended for 3 to 4 days than before. Therefore, butter milk and butter serum produced are not only stored in the same factory but also transferred to other places, thereby enabling the recycle of the entire amount of butter milk and butter serum which had to be discarded prior to the present invention.

Moreover, the effect of maintaining or improving the milky flavor originally possessed by butter milk and butter serum are shown by the Examples in the present specification, as explained below.

For example, in Examples 1 and 2, a heat oxidized smell is evaluated in the case where the dissolved oxygen concentration is decreased before the first heat treatment of two heat treatments necessary for producing butter milk (Example 1), and in the case of where the dissolved oxygen concentration is decreased before the second heat treatment of two heat treatments (Example 2). In each case, the evaluation result in the case of decreasing the dissolved oxygen concentration is excellent in comparison with the control (see Tables 1 and 2), and it is clearly shown that when the dissolved oxygen concentration is decreased at least either before the first heat treatment or the second heat treatment, the milky flavor originally possessed

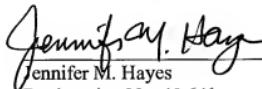
by butter milk and butter serum can be maintained or improved. Such an effect relates also to the specific relation between the heat treatment temperature and the dissolved oxygen concentration, i.e., decreasing the dissolved oxygen concentration of the raw cream, and/or the butter milk and/or butter serum to 8 ppm or less by addition of an inactive gas before the first heat treatment at 85°C to 95°C and/or the second heat treatment 85°C to 130°C. The above-mentioned steps and the temperature range are different from those for milk and the like, and they are novel conditions for butter milk and/or butter serum.

In view of the above, the present invention is not anticipated nor rendered obvious by Kamiya et al. Accordingly, Applicants respectfully request withdrawal of the rejections.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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